

Abstract

The invention relates to a method for automatically recognizing one or a plurality of structures in digitized image data. The method according to the present invention comprises the steps of (a) providing at least one reference graph comprising digitized reference image data of corresponding reference images, the reference graph or each reference graph comprising a net-like structure, the respective net-like structure being defined in that specific reference image data have assigned thereto nodes which are interconnected by links in a predetermined manner, and jets, each node having a jet assigned thereto and each jet comprising at least one sub-jet which is determined by convolutions of at least one class of filter functions with different magnitudes and/or orientations with the reference image data of the corresponding reference image at the specific node, or by convolutions of at least one class of filter functions with different magnitudes and/or orientations with colour-segmented reference image data of the corresponding reference image at the specific node, or by colour information on the reference image data at the specific node, or by texture descriptions of the corresponding reference image at the specific node, said texture descriptions being gained by statistical methods, or by motion vectors at the specific node, said motion vectors being extracted from successive reference images, (b) determining an optimum image graph from the digitized image data for each reference graph, said optimum image graph representing for a specific reference graph the optimum adaptation to said reference graph and being determined by: projecting the net-like structure of said specific reference graph into the image data whereby the structure of the image graph is defined, and determining sub-jets of the image graph at the nodes defined by its structure, said sub-jets corresponding to at least part of the determined sub-jets of the specific reference graph, and the projection of the net-like structure of said specific reference graph being varied until a graph comparison function which compares the jets of the image graph with the corresponding jets of said specific reference graph becomes optimal, and (c) associating the structure or each structure with the reference image corresponding to the reference graph for which the graph comparison function is optimal with respect to the optimal image graph determined for said reference graph.